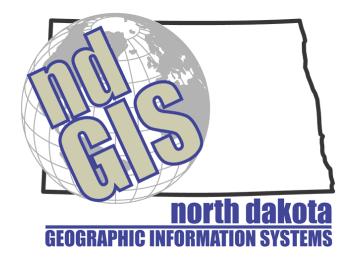
North Dakota GIS Program Report To Governor Jack Dalrymple

July 1, 2013 – June 30, 2014



Executive Order 2001-06: "The committee shall issue a report to the Governor's office at the end of each fiscal year, detailing progress, and problems encountered with GIS development in the state."

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Executive Summary

The North Dakota Geographic Information System (GIS) Program continued to be successful during the July 1, 2013 – June 30, 2014 reporting period. The Information Technology Department (ITD) and the North Dakota GIS Technical Committee (GISTC) operate the GIS Hub, an infrastructure comprised of geospatial data storage, data services, and application interfaces. The GIS Hub supports state agencies in the development of their GIS and the dissemination of common interest data to other levels of government and the public.

The GISTC actively enhances the GIS Hub by adding new data and maintaining existing data. The GIS Hub also supports web-based applications that are available via a PC or a mobile device.

Looking to the future, challenges include the need for additional human resources and the management of cloud technologies.

GIS Program Governance

The GIS Technical Committee (GISTC) was established by Executive Order 1995-05 and reaffirmed by 2001-06. The primary role of the GISTC is to service the GIS Hub and provide a collaborative environment that supports state agencies' GIS. A secondary role is to coordinate among federal, state, tribal, local government and the private sector.

Seven agencies listed in the Executive Order:

- Department of Health
- Department of Transportation
- Game & Fish Department
- Geological Survey
- Information Technology Department
- Parks & Recreation Department
- State Water Commission

Associate Members:

- Department of Trust Lands
- Oil & Gas Division
- Public Service Commission
- Department of Emergency Services
- Department of Agriculture
- ND Army National Guard

Accomplishments

Data Services and Applications

GIS Hub data are streamed via web-based data services, making these data available to users inside and outside of state government. These data services can be used by people using GIS on a PC or mobile device.

An example of GIS Hub data available using a web-based data service is the drinking water well head protection areas managed by the Department of Health (Figure 1). Making this data freely and easily available is extremely important to assist in planning of activities such as oil and gas development.

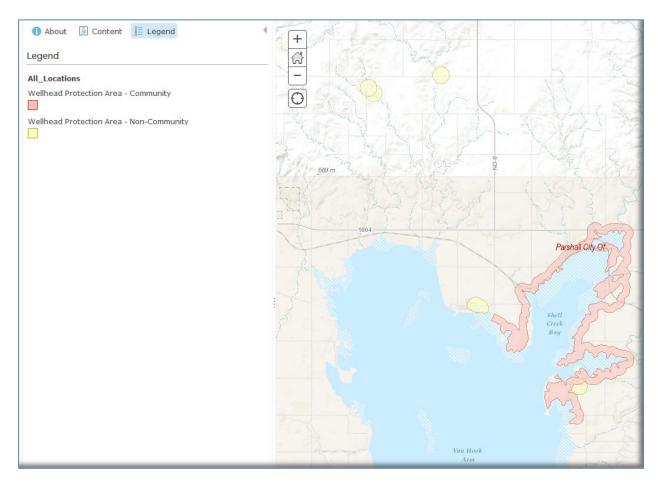


Figure 1. Well head protection areas.

An example of a GIS application is the Department of Agriculture apiary locations (Figure 2). This tool allows pesticide applicators to know the location of bee hive locations.

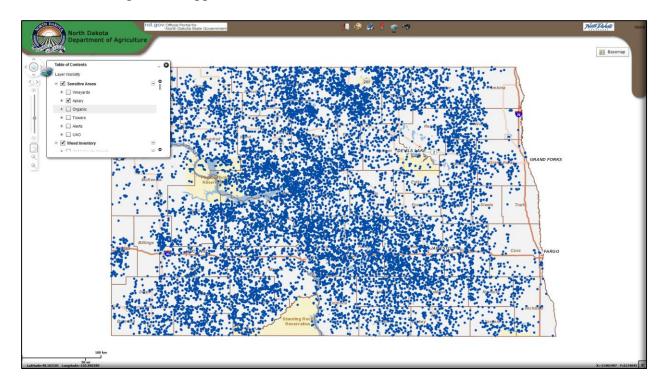


Figure 2. Department of Agriculture apiary locations

An example of a GIS application that is designed to work on both desktop computers and mobile devices is the snowmobile trails application (Figure 3) that uses data from the Parks and Recreation Department and Snowmobile ND.

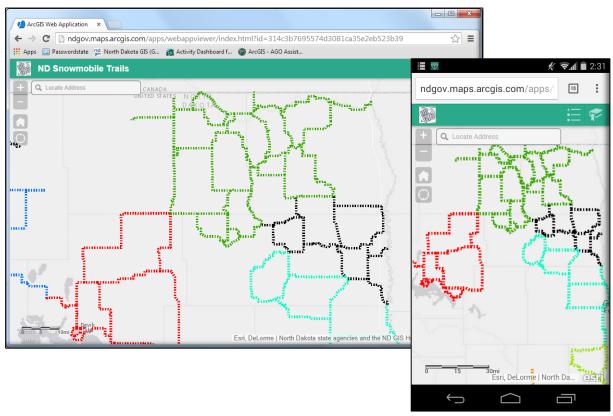


Figure 3. Snowmobile Trail Application

An example of a cloud-based GIS application is Visual ND (Figure 4), a term coined to describe North Dakota's version of a tool that allows agencies to publish their maps and other information into a common area, providing an additional means for finding and sharing GIS applications, services, and data. This tool does not replace any GIS Hub components but rather compliments and uses services provided by the GIS Hub.

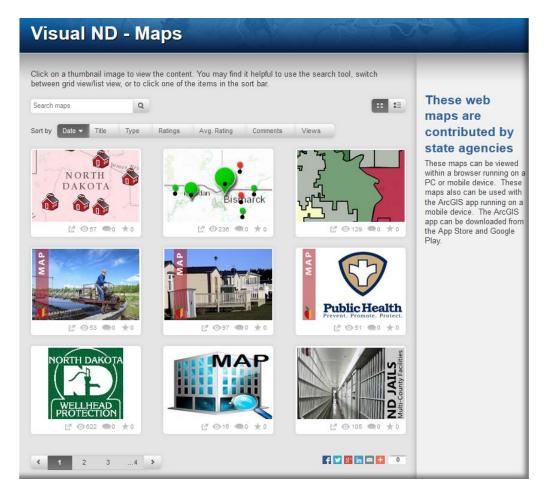


Figure 4. Visual ND

Updated Data

- Examples of updated/added data sets from state agency data stewards include:
 - Abandoned mines
 - o Workforce lodging (a.k.a. "crew camps")
 - Watershed boundaries
 - Wellhead Protection Areas
 - City boundaries
 - o Transportation datasets from the NDDOT and the U.S. Census Bureau
 - Public Land Survey System data such as townships
 - Assisted care facilities
 - Skilled nursing homes

- Soil conservation districts
- Surface water sampling sites
- Solid waste facilities
- Assessed lakes and rivers
- Human service regions
- o Aerial photography:
 - Bismarck/Mandan
 - Devils Lake
 - Missouri River
 - Statewide

Training and Education

- Users Conference Nearly 200 people attended the 2013 North Dakota GIS Users Conference which was held at the Alerus Center in Grand Forks.
- Visual ND A vendor was hired to train and mentor agencies in the use of Visual ND and its technology. This has resulted in a number of agencies being exposed to GIS for the first time and mapping data formerly found only in spreadsheets or tables on web sites.
- Workshops The GISTC helps to organize seminars and workshops. The subject of the most recent workshops focused on using the cloud-based Visual ND software.
- Coordinated GIS training The GISTC organizes training as needed to cover a wide variety of GIS subjects. This training has saved state agencies over \$77,800 in training costs alone and over an estimated \$336,600 in combined training and travel costs since the beginning of this program in 2002. These classes will continue including the use of instructors teaching through the web and using software and data installed in the Cloud.

Other Activities

- Interns The GISTC hired two temporary interns to assist in GIS data development and distribution activities that have been back-logged. One of these interns was shared between two agencies. Budget permitting, this internship will be done again.
- Open Data Even though the GIS Hub has been publicly delivering data for over a decade, there is a national movement to make government data, both GIS and non-GIS, more "open" in terms of finding it and accessing it by a wider range of users. The GISTC will be evaluating how to best proceed in the context of the GIS Hub (Figure 5).



Figure 5. Example of GIS Hub data in open data portal

- NG9-1-1 In support of the state's Next Generation 9-1-1 program, the GISTC created a NG9-1-1 Working Group in order to focus on GIS data currency and workflow. GIS plays a critical role in NG9-1-1.
- Land Parcels The GISTC has begun to identify the need and requirements for developing a statewide land parcel data set (Figure 6).



Figure 6. Example of Parcel Data (from Cass County GIS Department)

• **DES Base Map** – The Department of Emergency Services (DES) "Base Map Project" will result in aerial photography, road centerlines, and address points, all of which will be used in emergency operations, management, and planning. The NDDOT has completed collecting high-resolution aerial and is digitizing road centerlines from the aerial photography. A contractor hired by the DES is adding address information to the road centerlines and is developing the address point data. Figure 7 shows an example of the photography which is already on the GIS Hub.



Figure 7. Department of Emergency Services base map project aerial photography

Challenges

- **Human Resources** GIS activities within the state agencies can be categorized into data, system, and coordination. A number of state agencies would greatly benefit from having another person. For example, at the Information Technology Department, focusing on data development or system upgrades come at the expense of coordination with agencies and with local government. Reduced coordination can result in duplicated efforts and expenses and missed opportunities.
- **Cloud** GIS is only one example of many cloud-based services used by agencies. These services include authentication of users being maintained within the cloud service rather than within the State's authentication systems, resulting in duplicated effort and lack of a centralized method of managing users' identities.